

(19)



JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: **2001015752 A**

(43) Date of publication of application: **19.01.01**

(51) Int. Cl

H01L 29/78

H01L 29/861

(21) Application number: **11308523**

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(22) Date of filing: **29.10.99**

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(30) Priority: **11.11.98 JP 10319672**
28.04.99 JP 11121224

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(54) **SUPERJUNCTION SEMICONDUCTOR ELEMENT** COPYRIGHT: (C)2001,JPO
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(57) Abstract:

PROBLEM TO BE SOLVED: To elevate breakdown strength, in a superjunction semiconductor element which is equipped with a drift layer, consisting of parallel pn layers letting current flow in on conditions and also being depleted in off conditions.

SOLUTION: This superjunction semiconductor element is provided with an n high-resistance region 20, around a drift layer 12 consisting of parallel pn layers composed of n drift regions 12a and p partition regions 12b, and concentration ND of the impurities in the high-resistance region 20 is set at $5.62 \times 10^{17} \times VDSS - 1.36$ (cm⁻³) or lower. But, VDSS shows breakdown strength (V). Furthermore, an n-channel stopper region adjacent to the high-resistance region 20 is arranged.

